

Earth Science Enterprise
Mission Confirmation and Establishment of Project Baselines
04/30/04

The following documents/information are to be included and/or validated for confirmation of new missions by the Earth Science Enterprise and to establish a traceable baseline for the Implementation Phase at the Mission Confirmation Review (MCR) milestone. This is the minimum documentation required for a successful MCR (for both HQ and for the Program/Project), not an exhaustive list. MCR typically occurs around the time of the mission-level Preliminary Design Review, and will be scheduled by the Program Executive in consultation with the Program/Project Office(s). Missions with multiple partners comprising varying contributions to the mission may require special consideration in scheduling of the MCR and related reviews, to ensure NASA commitments are validated in an appropriate time frame.

Baseline Documents

- Project Plan
 - Purpose: Top level description of the project, including science objectives, and general approach to implementation.
 - Signed by Project and Program Managers; provided to the NASA HQ Program Executive (PE) for review at Headquarters when placed in routing for review at the implementing Center.
- PCA
 - Purpose: Enterprise commitment to the Agency on new missions.
 - Generated by the PE and signed at the Enterprise-level MCR, or Agency-level NAR, by the ESE AA. Copy provided to the Program/Project Office(s).
- Program Plan
 - Purpose: Project appendices to the appropriate Program Plan is a commitment by the Program Office/Implementing Center to the Enterprise.
 - NASA HQ routing is through the Program Executive to YF, YS, and YB Division Directors, and Deputy AA(s); approved by the Program Manager, Center Director, and Associate Administrator.
- Key Project documents
 - Project documentation at MCR for base-lining shall include, but not be limited to: Level 1 requirements; Mission Success Criteria; Project Implementation Plan, including design documentation that demonstrates consistency with the Project Plan, Project organization/Work Breakdown Structure (WBS), and partnerships; Independent Review Plan, Risk Management Plan; Systems Engineering Management Plan; Implementation Phase Letters Of Agreement/Memoranda Of Understanding/Implementation Agreements for partnerships (or equivalent); draft Science Data Management Plan; and a Technology Development Plan or evaluation of technology maturities.

Requirements

- Approved Level 1 and Level 2 requirements.
 - Purpose: Describes the top-level science, operations, flight hardware and software, and data management requirements for the Project.
 - Level 1 requirements are prepared by the Enterprise with Project support, and signed by the AA.
 - Level 2 requirements are prepared by Headquarters and signed by the Program with a copy to the Program Executive.
- Traceability of level 2/3 requirements in specifications to higher-level requirements, to verify that higher-level requirements are being fulfilled as intended, and are within the scope authorized.
- Work Breakdown Structure (WBS)
 - Complete WBS and WBS dictionary.
 - WBS dictionary describes content and boundaries of WBS elements, which are needed to monitor work against baselines.
 - Include major contracts and partners based on acquisition strategy or plans for the mission.

Cost

- Level 2 time-phased budget
 - Describes funding requirements by FY and by WBS at least at level 2, including reserves at WBS level 2.
 - WBS level 2 will have the spacecraft, instrument(s), data system, science, operations, and other appropriate mission-specific elements as separate line items.
- Basis of Estimate (BOE)
 - Describes what labor, materials, processes, ground rules and assumptions were used in developing a Project cost estimate/funding profile (e.g., schedule dependencies, scope issues, reserve requirements, etc.), and enables reviewers to effectively assess the cost estimate.
- Traceability
 - Grass-roots estimates and BOE's traceable to WBS.

Schedule

- Integrated Schedule
 - Detailed, networked schedule (level 2-3) covering all project activities, including contracted work (if applicable). Specifies tasks, durations, dates, and dependencies (predecessors and successors).
- Milestones
 - Dates planned for major events. Must be at a level acceptable to the Program Executive, since it will vary by type of project. Milestone dates must be compatible with lower level networked schedule.
 - Major milestone examples include System Requirements Review, Preliminary Design Review, Mission Confirmation Review, and Pre-Environmental Review.

Risk & Risk Management

- Risk Management
 - Risk Management Plan and process are in place, including tracking and accounting for partnership risk.
- Mission Risk Status
 - 5x5 Risk Matrix with top (up to) 10 mission risks identified and explained, action plans in place (i.e., mitigate, watch, etc.), and reserves identified and/or liened commensurate with mission risk.

Performance

- Metrics
 - List and description of metrics that will be reported to Center and HQ management to monitor project cost, schedule, and technical progress, along with method of data collection and frequency of reporting.

MCR Presentation

- Not all material above is intended for presentation, but the Program Executive must be able to confirm the maturity of the Project and the readiness of the Project to enter the implementation phase. The Program Scientist must be able to confirm the mission's approach can fulfill science objectives and requirements. Exact MCR presentation material will be unique to each mission, and agreed upon by the Program/Project and Program Executive.
- Mission Confirmation Presentation material will contain, but is not limited to:
 - Technical and programmatic mission definition material adequate to assess Formulation progress, mission design and development maturity, and to evaluate probability of mission success in Implementation and during Operations.
 - Descope options.
 - Each option will include a decision date (phase within Project life-cycle), magnitude of savings (cost, schedule), risk implications, and mission impact (especially any Level 1 or other science impacts).
 - Cancellation Review criteria.
 - The schedule, cost, and science "floor" proposed by the Project that would trigger a Cancellation Review. These items will be approved by the Enterprise at the MCR, and may be added to or modified by the Enterprise (or recommended by the Project) during the course of the Project. Relationship and effect on Level 1 requirements must be addressed in these criteria.